

Appl. No. 10/086,765

Amendment dated July 30, 2004

Reply to Office Action of December 18, 2003 and Telephonic Interviews of July 28 and 30, 2004

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1-20. (canceled)

21. (currently amended) An antimicrobial concentrate and instructions for mixing the concentrate with water;

the concentrate ~~comprising~~ consisting essentially of antimicrobial solvent and antimicrobial agent;

the antimicrobial solvent ~~comprising~~ being benzyl alcohol, ethylene glycol phenyl ether, propylene glycol phenyl ether, propylene carbonate, phenoxyethanol, dimethyl malonate, dimethyl succinate, diethyl succinate, dibutyl succinate, dimethyl glutarate, diethyl glutarate, dibutyl glutarate, dimethyl adipate, diethyl adipate, dibutyl adipate, dimethyl pimelate, diethyl pimelate, dimethyl suberate, diethyl suberate, dimethyl sebacate, diethyl sebacate, or mixture thereof;

the antimicrobial agent ~~comprising~~ being halogen containing antimicrobial agent, peroxycarboxylic acid, ~~organic acidifying agent~~ carboxylic acid, or mixture thereof;

the amounts of antimicrobial solvent and antimicrobial agent in the concentrate being sufficient so that when the concentrate is mixed with water according to the instructions the resulting mixture will provide greater than a 1-log order reduction in population of bacteria or spores of *Bacillus cereus* within 10 seconds at 60° C.

22. (canceled)

23. (currently amended) The concentrate of claim 21, wherein the halogen containing antimicrobial agent ~~comprises~~ is hypochlorous acid, hypochlorous acid salt, chlorine dioxide, hypobromous acid, hypobromous acid salt, or interhalide.

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24. (currently amended) The concentrate of claim 23, wherein the interhalide ~~comprises~~ is iodine monochloride, iodine dichloride, iodine trichloride, iodine tetrachloride, bromine chloride, iodine monobromide, iodine dibromide, or mixture thereof.

25. (currently amended) The concentrate of claim 21, wherein the peroxycarboxylic acid ~~comprises~~ is peroxyacetic acid, peroxyformic acid, peroxyoctanoic acid, ester peroxycarboxylic acid, salt thereof, or mixture thereof.

26. (currently amended) The concentrate of claim 21, wherein the ~~organic acidifying agent comprises~~ carboxylic acid is aliphatic carboxylic acid, aromatic carboxylic acid, or mixture thereof.

27. (currently amended) The concentrate of claim 26, wherein the carboxylic acid ~~comprises~~ is formic acid, acetic acid, propionic acid, heptanoic acid, octanoic acid, nonanoic acid, decanoic acid, benzoic acid, salicylic acid, salt thereof, or mixture thereof.

28. (canceled)

29. (currently amended) The concentrate of claim 21, wherein the antimicrobial solvent ~~comprises~~ is dimethyl adipate, diethyl adipate, dibutyl adipate, dimethyl pimelate, diethyl pimelate, dimethyl suberate, diethyl suberate, dimethyl sebacate, diethyl sebacate, or mixture thereof.

30. (currently amended) The concentrate of claim 21, further ~~comprising~~ consisting essentially of diluting solvent; the diluting solvent being water, glycol, CO₂, or mixture thereof.

31. (currently amended) The concentrate of claim 21, wherein when the concentrate is mixed with water according to the instructions the resulting mixture the composition also provides greater than 1-log order reduction in population of the mold *Chaetomium funicola* within 10 seconds at 60° C.

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32. (currently amended) An antimicrobial composition ~~comprising~~ consisting essentially of diluting solvent, antimicrobial solvent, and antimicrobial agent;
the diluting solvent being water, glycol, CO₂, or mixture thereof;
the antimicrobial solvent ~~comprising~~ being benzyl alcohol, ethylene glycol phenyl ether, propylene glycol phenyl ether, propylene carbonate, phenoxyethanol, dimethyl malonate, dimethyl succinate, diethyl succinate, dibutyl succinate, dimethyl glutarate, diethyl glutarate, dibutyl glutarate, dimethyl adipate, diethyl adipate, dibutyl adipate, dimethyl pimelate, diethyl pimelate, dimethyl suberate, diethyl suberate, dimethyl sebacate, diethyl sebacate, or mixture thereof;
the antimicrobial agent ~~comprising~~ being halogen containing antimicrobial agent, peroxy-carboxylic acid, ~~organic-acidifying-agent~~ carboxylic acid, or mixture thereof;
wherein the antimicrobial solvent and antimicrobial agent are at concentration effective to provide greater than a 1-log order reduction in the population of bacteria or spores of *Bacillus cereus* within 10 seconds at 60° C.

33. (currently amended) The composition of claim 32, wherein the diluting solvent ~~comprises~~ is water.

34. (canceled)

35. (currently amended) The composition of claim 32, wherein the halogen containing antimicrobial agent ~~comprises~~ is hypochlorous acid, hypochlorous acid salt, chlorine dioxide, hypobromous acid, hypobromous acid salt, or interhalide.

36. (currently amended) The composition of claim 35, wherein the interhalide ~~comprises~~ is iodine monochloride, iodine dichloride, iodine trichloride, iodine tetrachloride, bromine chloride, iodine monobromide, iodine dibromide, or mixture thereof.

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37. (currently amended) The composition of claim 32, wherein the peroxycarboxylic acid ~~comprises~~ is peroxyacetic acid, peroxyformic acid, peroxyoctanoic acid, ester peroxycarboxylic acid, salt thereof, or mixture thereof.

38. (currently amended) The composition of claim 32, wherein the ~~organic acidifying agent comprises~~ carboxylic acid is aliphatic carboxylic acid, aromatic carboxylic acid, or mixture thereof.

39. (currently amended) The composition of claim 38, wherein the carboxylic acid ~~comprises~~ is formic acid, acetic acid, propionic acid, heptanoic acid, octanoic acid, nonanoic acid, decanoic acid, benzoic acid, salicylic acid, salt thereof, or mixture thereof.

40. (canceled)

41. (currently amended) The composition of claim 32, wherein the antimicrobial solvent ~~comprises~~ is dimethyl adipate, diethyl adipate, dibutyl adipate, dimethyl pimelate, diethyl pimelate, dimethyl suberate, diethyl suberate, dimethyl sebacate, diethyl sebacate, or mixture thereof.

42. (currently amended) The composition of claim 32, wherein the diluting solvent ~~comprises~~ is water and the antimicrobial solvent has a water solubility less than about 10% by weight.

43. (original) The composition of claim 42, wherein the antimicrobial solvent has a water solubility less than about 5% by weight.

44. (original) The composition of claim 43, wherein the antimicrobial solvent has a water solubility less than about 2% by weight.

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45. (currently amended) The composition of claim 42, ~~comprising water and~~ having at least about 10 weight % antimicrobial solvent.

46. (currently amended) The composition of claim 42, ~~comprising water and~~ having at least about 50 weight % antimicrobial solvent.

47. (currently amended) The composition of claim 32, ~~comprising water and~~ having about 75 weight % to about 95 weight % antimicrobial solvent.

48. (previously presented) The composition of claim 32, wherein the composition is cosolvent-free.

49. (previously presented) The composition of claim 32, wherein the composition is surfactant-free.

50. (currently amended) An antimicrobial concentrate and instructions for mixing the concentrate with water;

the concentrate ~~comprising~~ consisting essentially of antimicrobial solvent, octanoic acid, hydrogen peroxide, and peroxyoctanoic acid;

the antimicrobial solvent being benzyl alcohol, ethylene glycol phenyl ether, propylene glycol phenyl ether, propylene carbonate, phenoxyethanol, dimethyl malonate, dimethyl succinate, diethyl succinate, dibutyl succinate, dimethyl glutarate, diethyl glutarate, dibutyl glutarate, dimethyl adipate, diethyl adipate, dibutyl adipate, dimethyl pimelate, diethyl pimelate, dimethyl suberate, diethyl suberate, dimethyl sebacate, diethyl sebacate, octanoic acid, or mixture thereof;

the amounts of antimicrobial solvent and peroxyoctanoic acid in the concentrate being sufficient so that when the concentrate is mixed with water according to the instructions the resulting mixture will provide greater than a 1-log order reduction in population of bacteria or spores of *Bacillus cereus* within 10 seconds at 60° C.

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51-55. (canceled)

56. (currently amended) The concentrate of claim 55, wherein the antimicrobial solvent ~~comprises~~ is dimethyl adipate, diethyl adipate, dibutyl adipate, dimethyl pimelate, diethyl pimelate, dimethyl suberate, diethyl suberate, dimethyl sebacate, diethyl sebacate, or mixture thereof.

57. (currently amended) The concentrate of claim ~~54~~ 50, wherein the antimicrobial solvent ~~comprises~~ is octanoic acid.

58. (currently amended) The concentrate of claim 21, further ~~comprising~~ consisting essentially of diluting solvent.

59. (currently amended) An antimicrobial composition ~~comprising~~ consisting essentially of diluting solvent, antimicrobial solvent, octanoic acid, hydrogen peroxide, and peroxyoctanoic acid;

the diluting solvent being water, glycol, CO₂, organic acid, peroxide, inorganic acid, or mixture thereof;

the antimicrobial solvent being benzyl alcohol, ethylene glycol phenyl ether, propylene glycol phenyl ether, propylene carbonate, phenoxyethanol, dimethyl malonate, dimethyl succinate, diethyl succinate, dibutyl succinate, dimethyl glutarate, diethyl glutarate, dibutyl glutarate, dimethyl adipate, diethyl adipate, dibutyl adipate, dimethyl pimelate, diethyl pimelate, dimethyl suberate, diethyl suberate, dimethyl sebacate, diethyl sebacate, octanoic acid, or mixture thereof;

wherein the antimicrobial solvent and antimicrobial agent are at concentration effective to provide greater than a 1-log order reduction in the population of bacteria or spores of *Bacillus cereus* within 10 seconds at 60° C.

60. (currently amended) The composition of claim 59, wherein the diluting solvent ~~comprises~~ is water.

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61-65. (canceled)

66. (currently amended) The composition of claim ~~65~~ 59, wherein the antimicrobial solvent ~~comprises~~ is dimethyl adipate, diethyl adipate, dibutyl adipate, dimethyl pimelate, diethyl pimelate, dimethyl suberate, diethyl suberate, dimethyl sebacate, diethyl sebacate, or mixture thereof.

67. (currently amended) The composition of claim 59, wherein the antimicrobial solvent ~~comprises~~ is octanoic acid.

68. (currently amended) The composition of claim 59, ~~comprising wherein the~~ diluting solvent is water and the composition has at least about 10 weight % antimicrobial solvent.

69. (currently amended) The composition of claim 68, ~~comprising water and~~ having at least about 50 weight % antimicrobial solvent.

70. (currently amended) The composition of claim 69, ~~comprising water and~~ having about 75 weight % to about 95 weight % antimicrobial solvent.

71. (new) The composition of claim 59, wherein the diluting solvent is water and wherein the antimicrobial solvent is octanoic acid.